Ohio's Surface Water Monitoring Design in the 3rd Millennium:

The Age of the TMDL

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Ecological Assessment Section

THE FRAMEWORK:
Ohio's Watershed Assessment Units
(USGS 11-digit Hydrologic Units)

Ohio’s Large River Assessment Units

(23 Rivers with > 500 mi^2 watersheds)

Aquatic Bioassessments by Ohio EPA
The Integrated Biosurvey

Where

- Mainly rivers, streams, and small waterways
- In use and development for Lake Erie, Ohio River, and wetlands

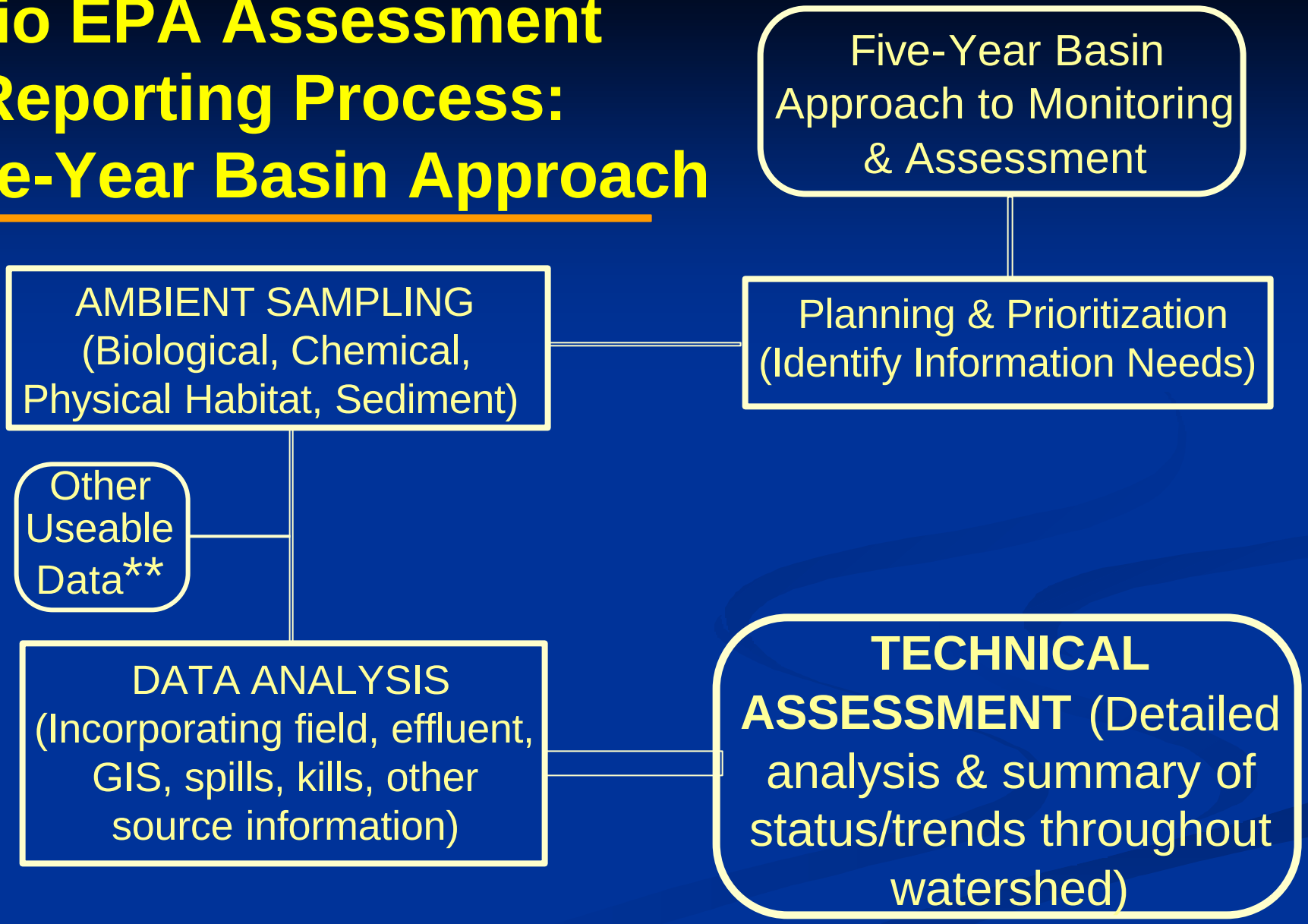
What

- Fish, macroinvertebrates, physical habitat
- Sediments, water quality, fish contamination
- Chlorophyll

Why

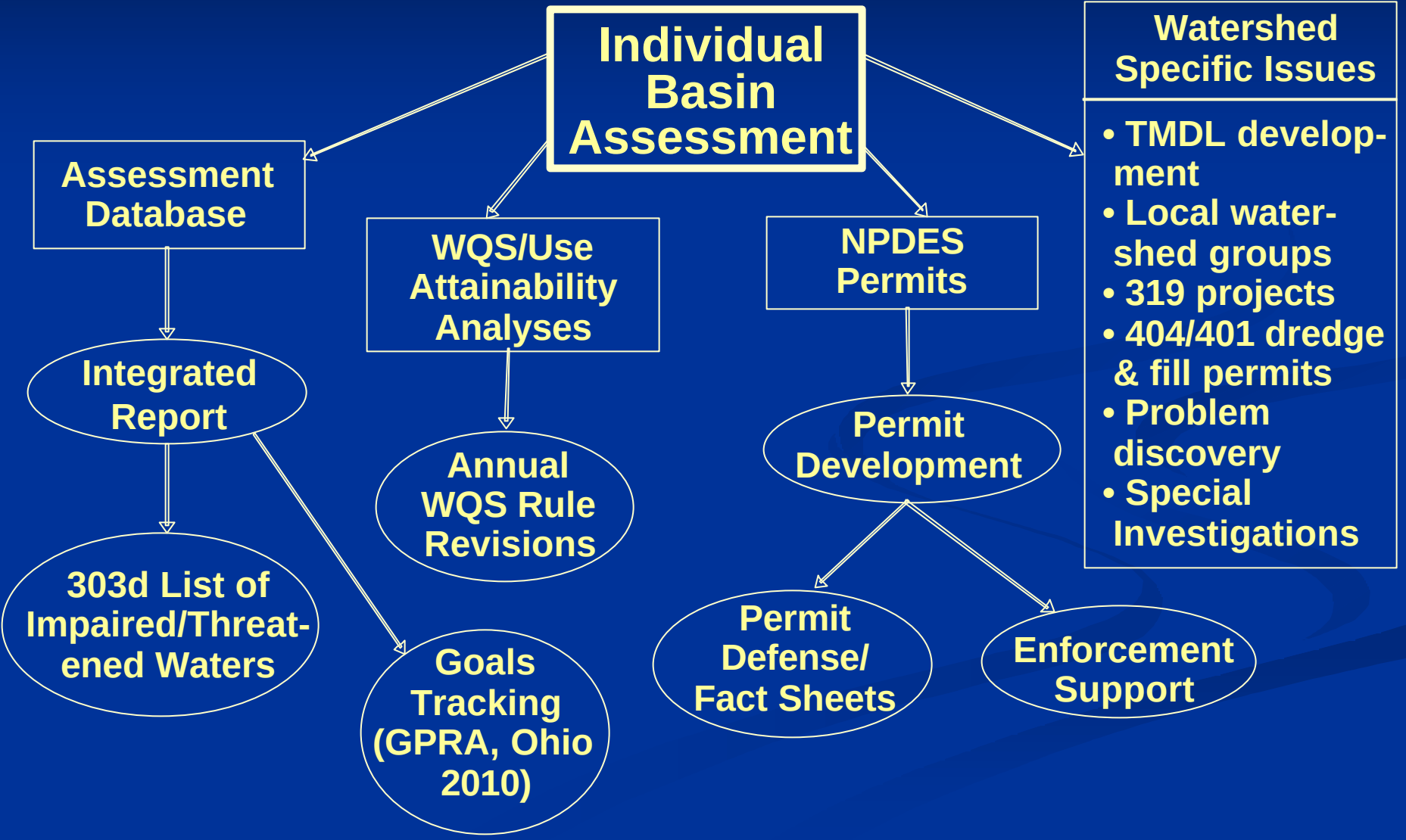
- Provide empirical information for water quality management and decision-making
- Determine status of Ohio's aquatic resources
- Assure that waters are correctly classified

Ohio EPA Assessment & Reporting Process: Five-Year Basin Approach



** - *Must meet Data Quality Objectives per Ohio EPA 5-Year Monitoring Strategy*

Functional Support Provided by Annual Rotating Basin Assessments



Ohio TMDL Process Overview

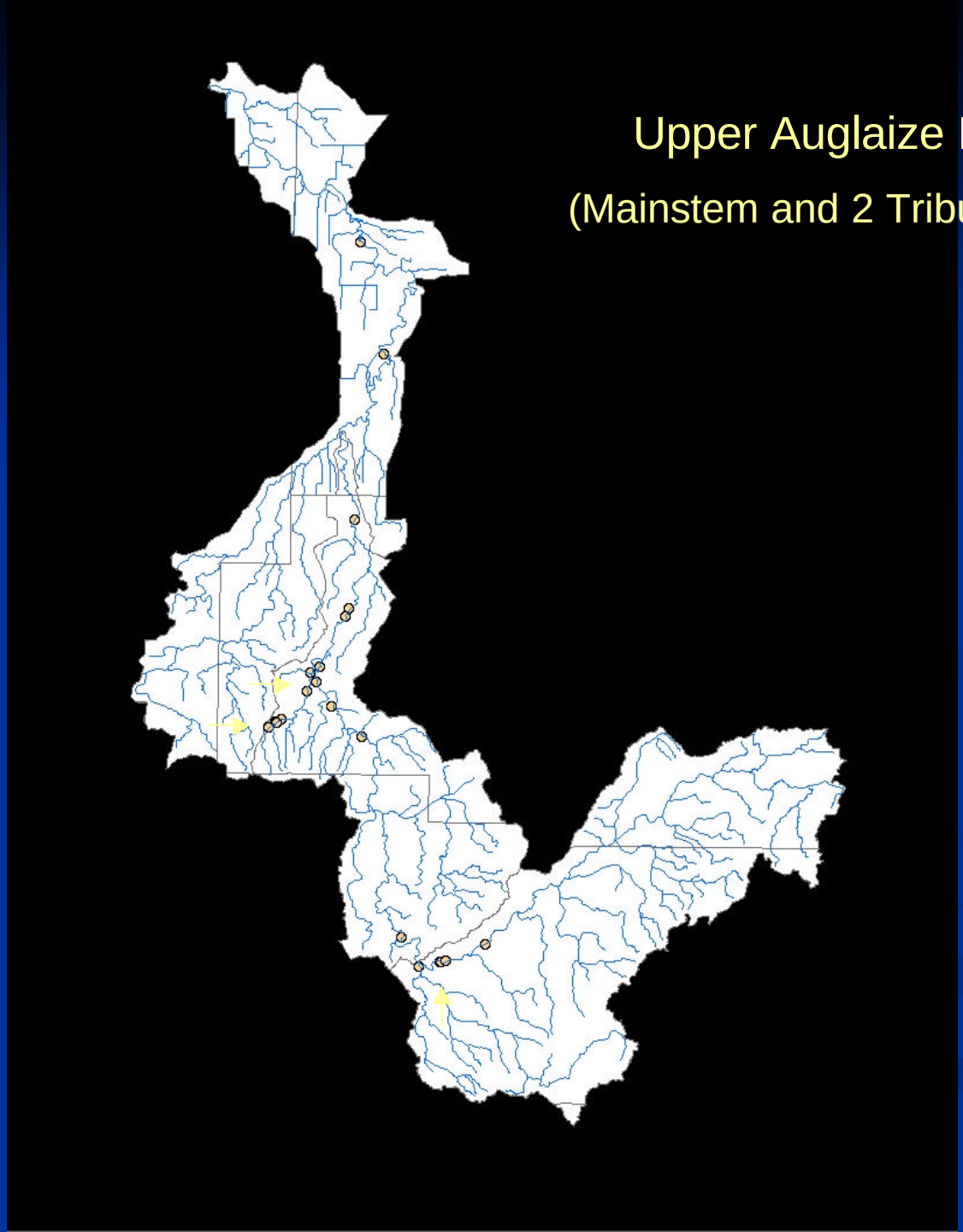
1. Design survey
2. Collect data
3. Assess data
4. Define goal
5. Develop targets
6. Select scenario
7. Prepare plan
8. Submit report
9. Implement internally
10. Implement externally
11. Annual validation
12. Check status

Assess

Develop

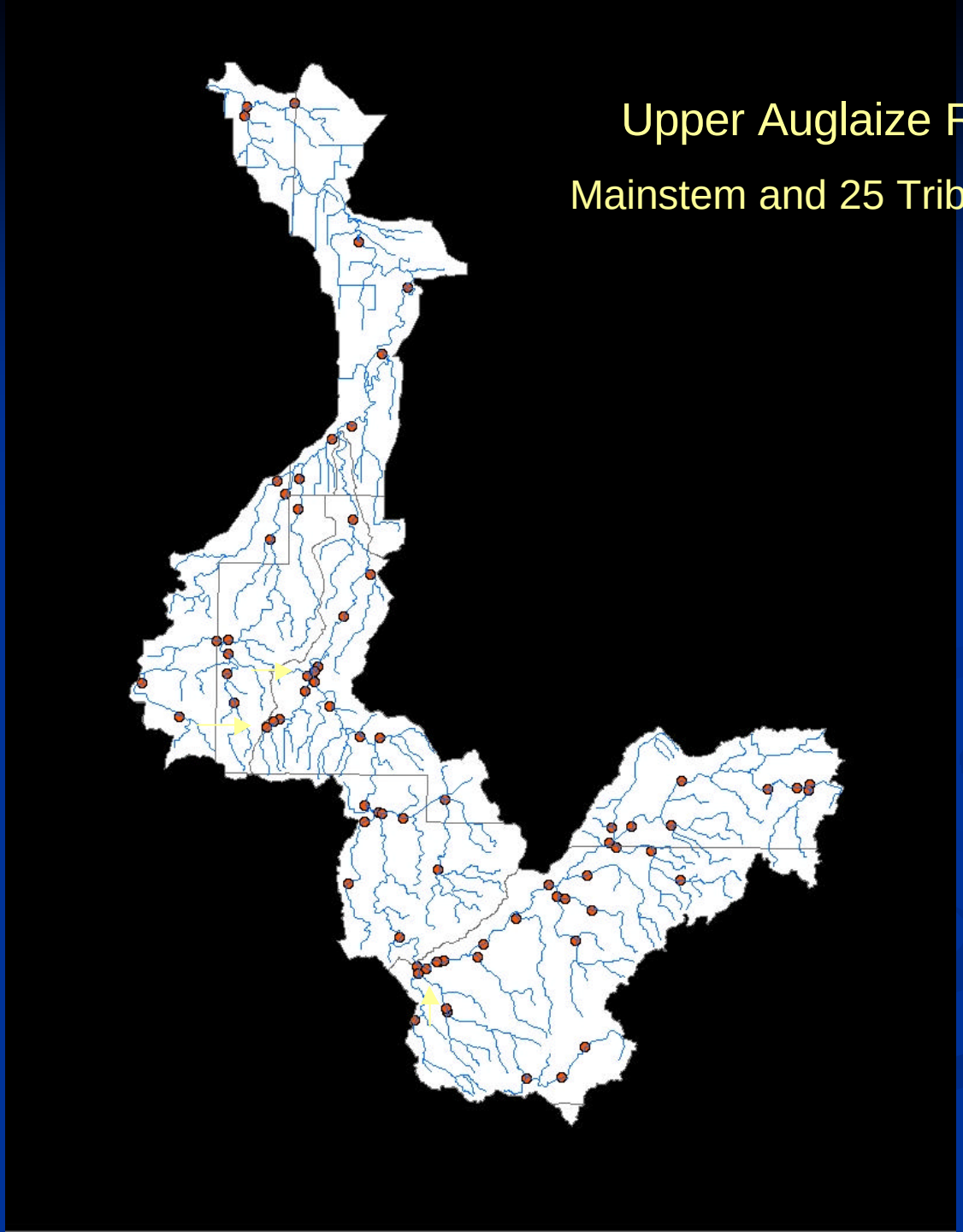
Implement

Validate



Upper Auglaize River, 1991

(Mainstem and 2 Tributaries - 21 Sites)



Upper Auglaize River, 2000

Mainstem and 25 Tributaries – 76 Sites


WAKATOMIKA
CREEK
Wakatomika
Basin
OhioEPA


WAKATOMIKA
CREEK
240
Wakatomika
Basin
OhioEPA


WAKATOMIKA
CREEK
120
Wakatomika
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OhioEPA


WAKATOMIKA
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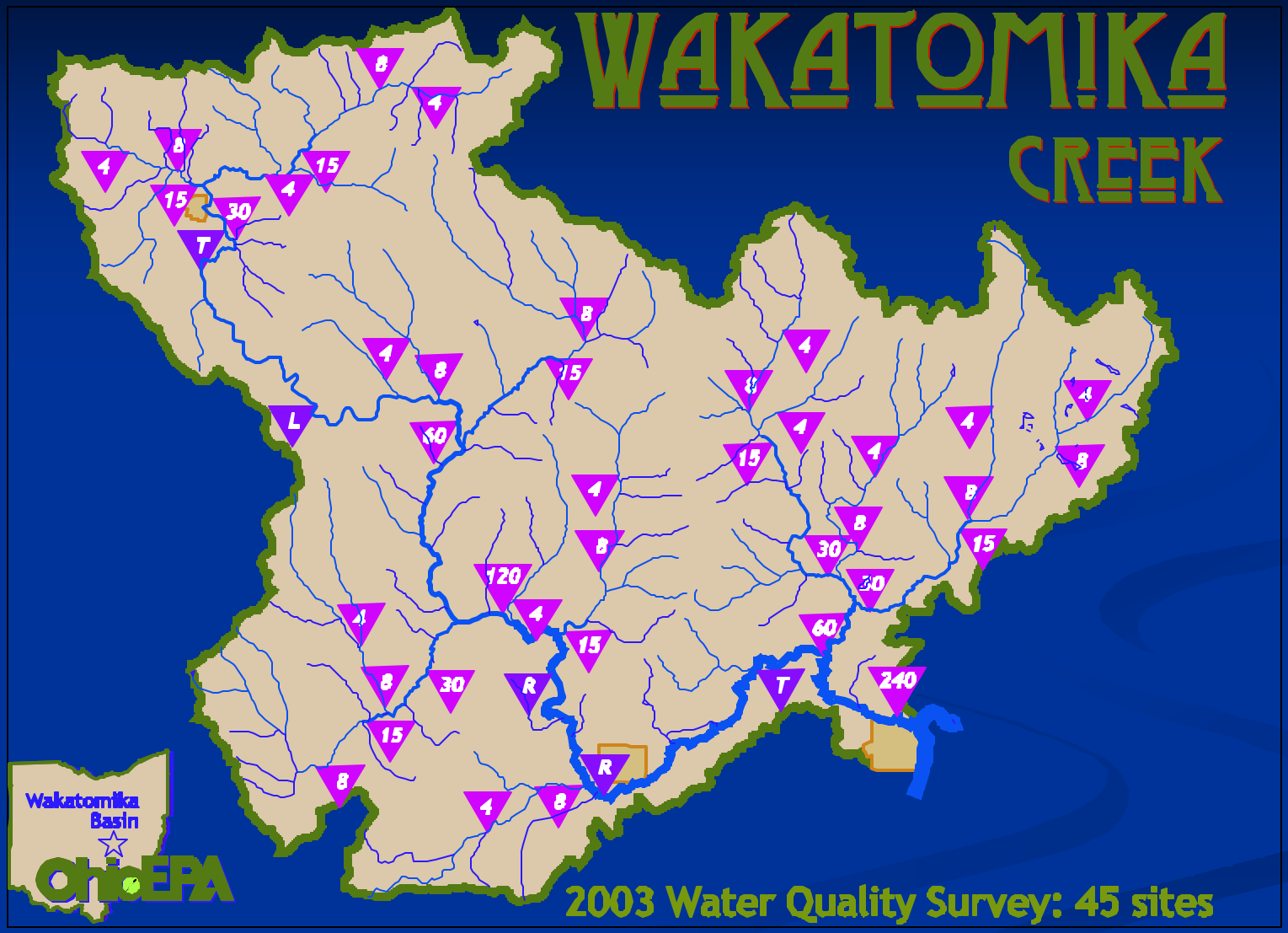
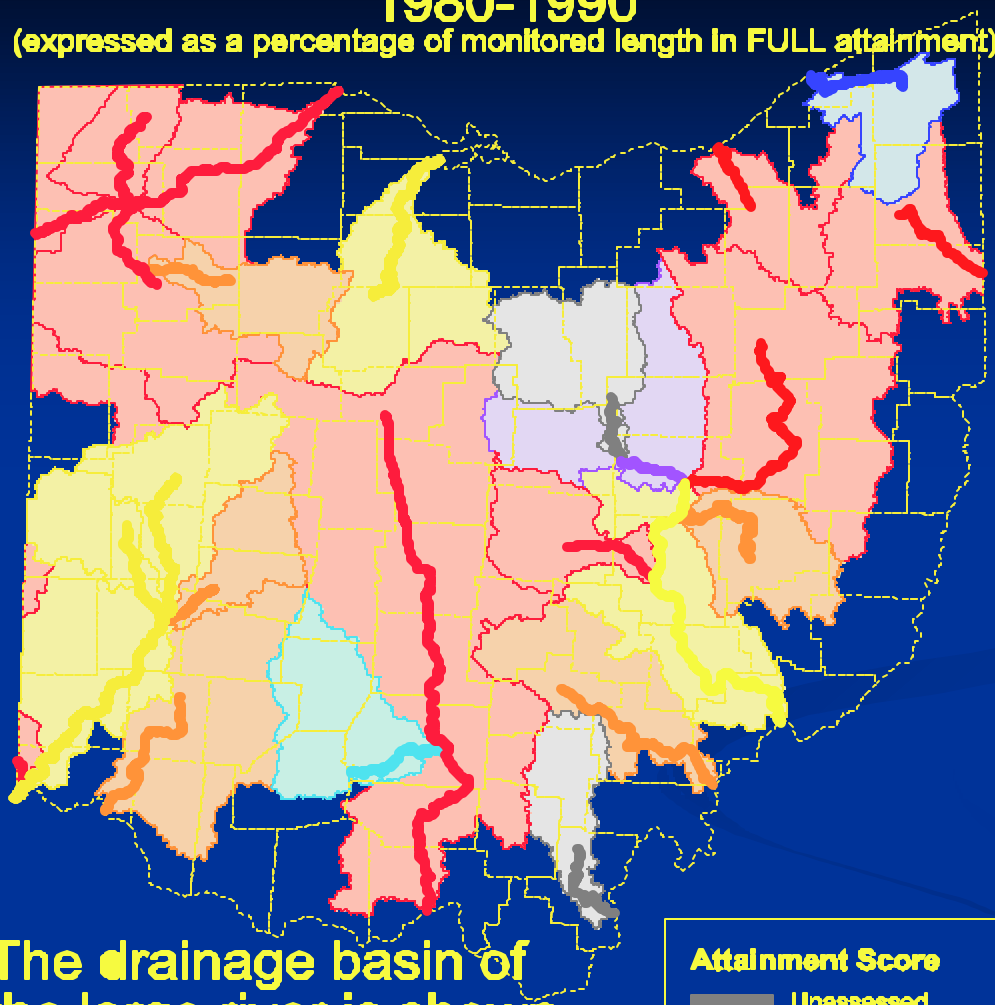

WAKATOMIKA
CREEK
Wakatomika Basin
OhioEPA
2003 Water Quality Survey: 45 sites

Benefits of Geometric Site Selection Process

- Organizes watershed issues in proportion to the occurrence of resource types
- Corresponds to scales of management and implementation
- Prioritization can account for severity and extent of impairments and threats

Status of Aquatic Life in Ohio's Large Rivers 1980-1990

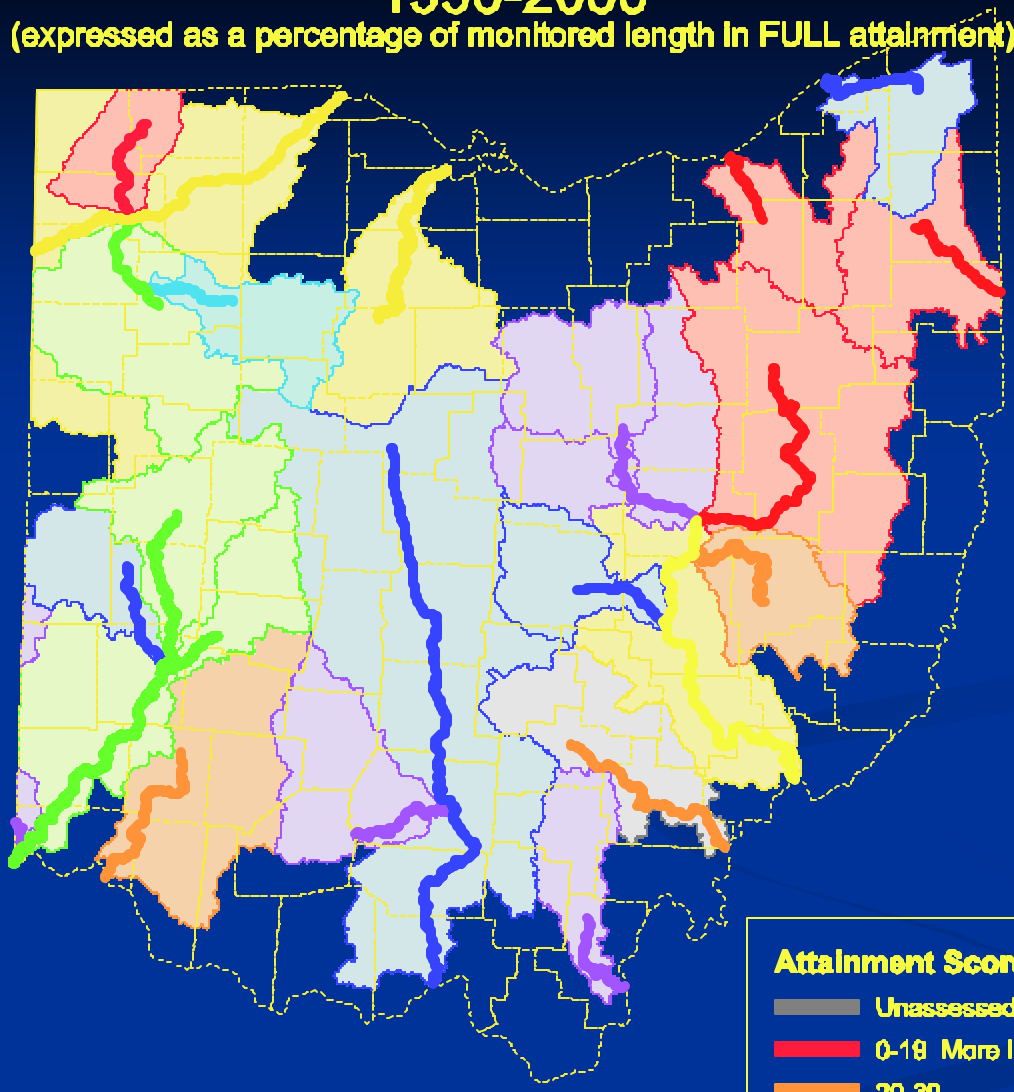
(expressed as a percentage of monitored length in FULL attainment)



The drainage basin of the large river is shown, but the color only reflects the status of the mainstem

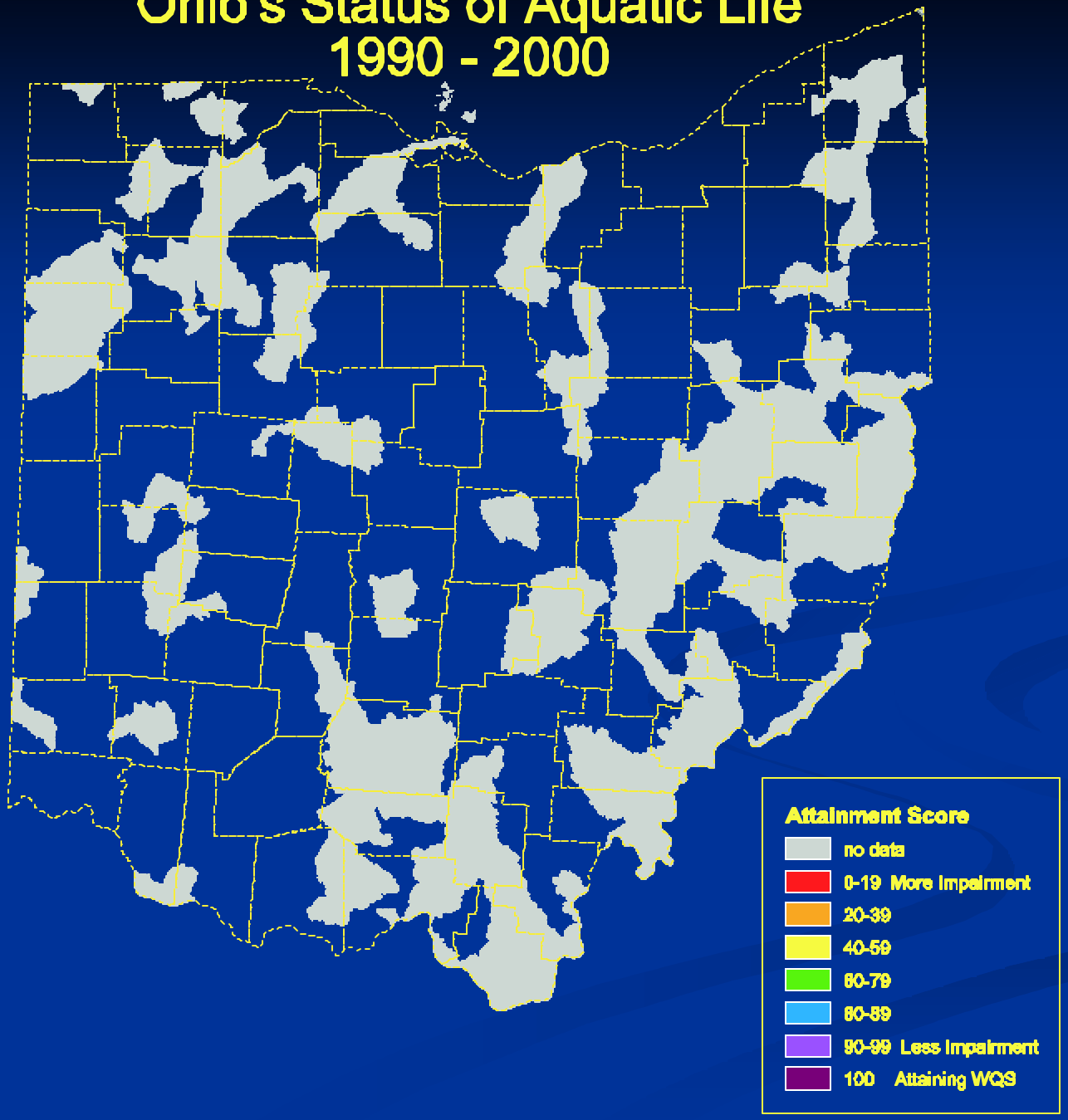
Status of Aquatic Life in Ohio's Large Rivers 1990-2000

(expressed as a percentage of monitored length in FULL attainment)



Color of Large River drainage reflects mainstem status. Refer to watershed assessment map for smaller drainage status.

Ohio's Status of Aquatic Life
1990 - 2000



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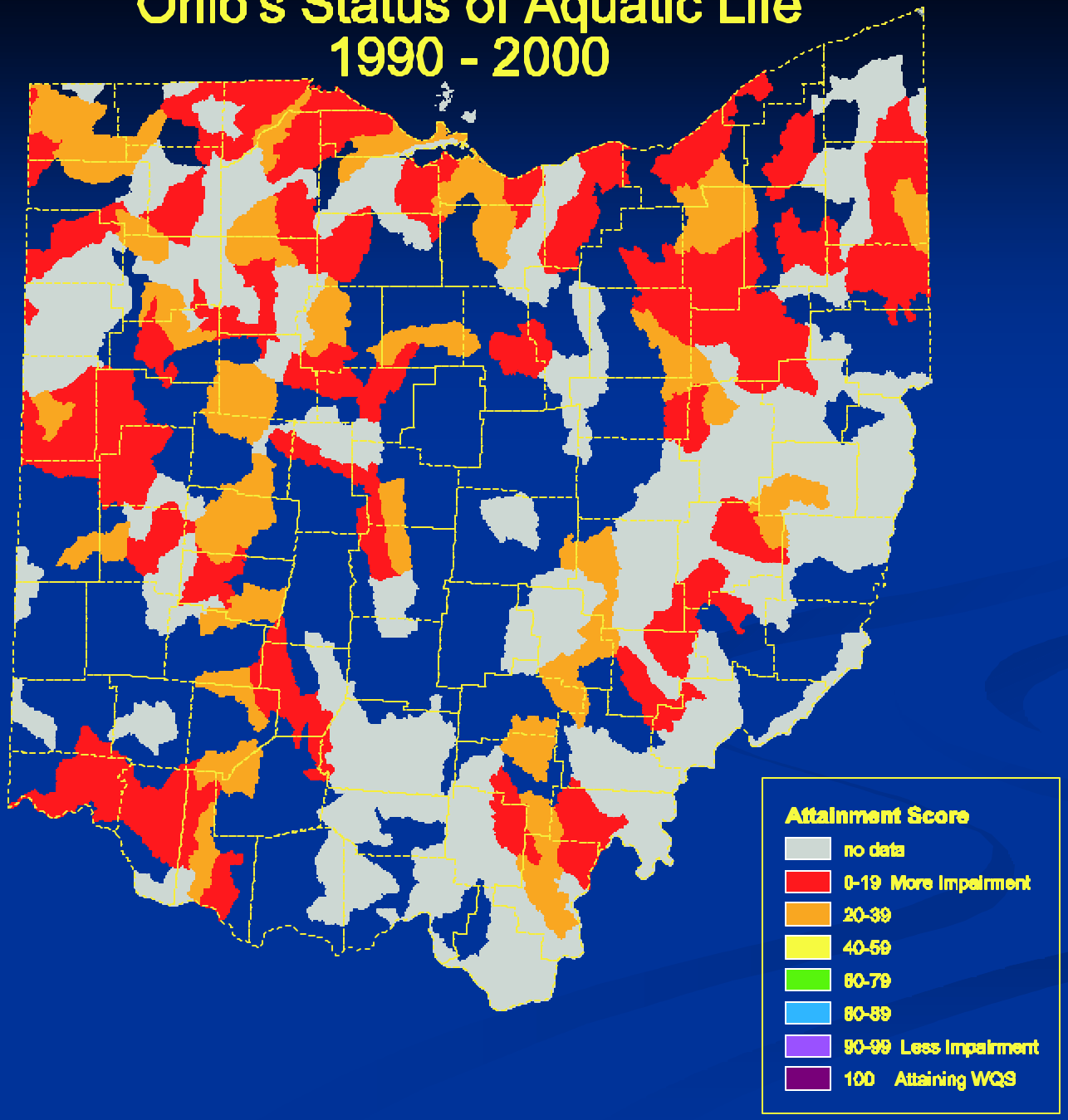
1990 - 2000



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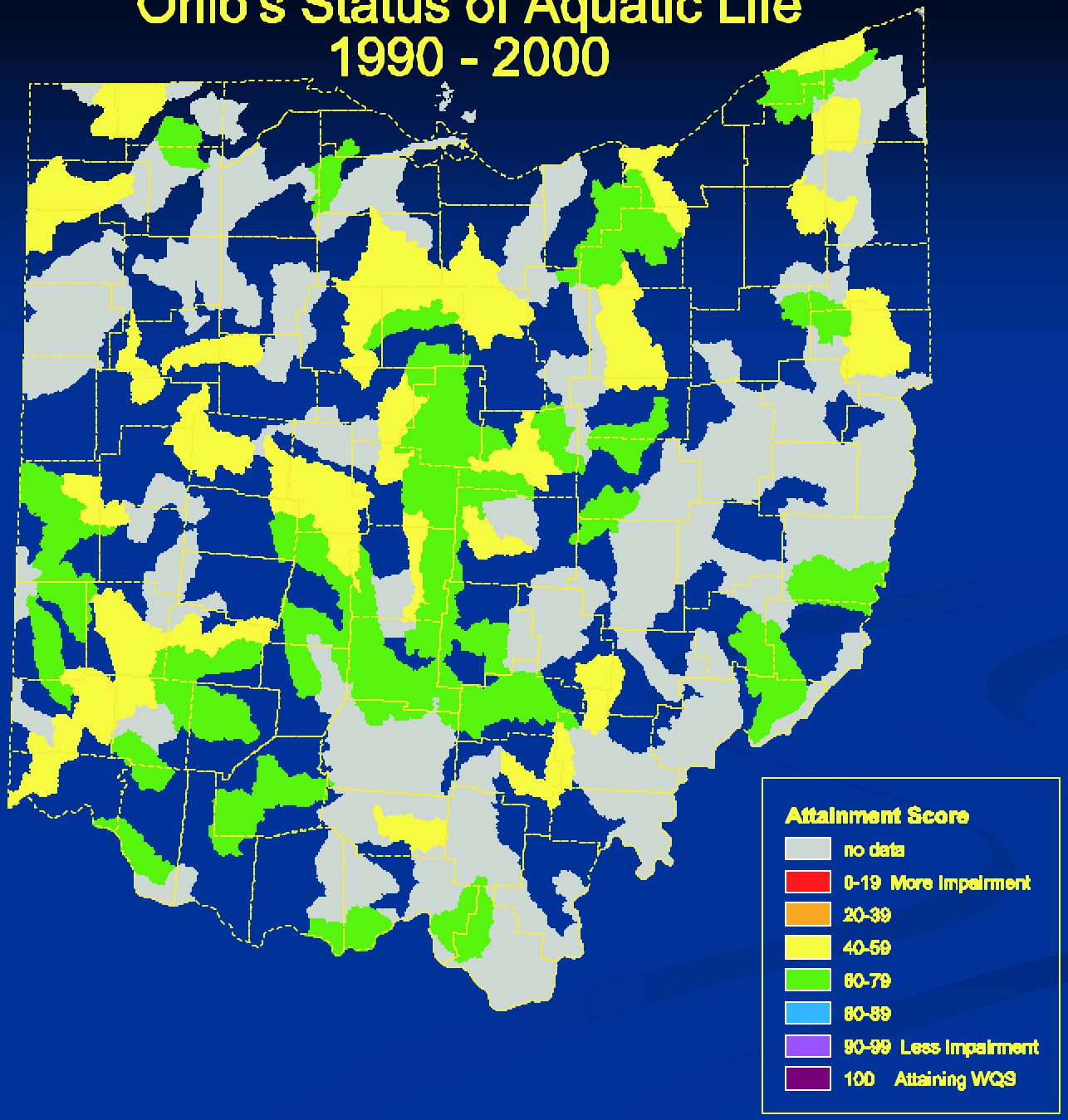

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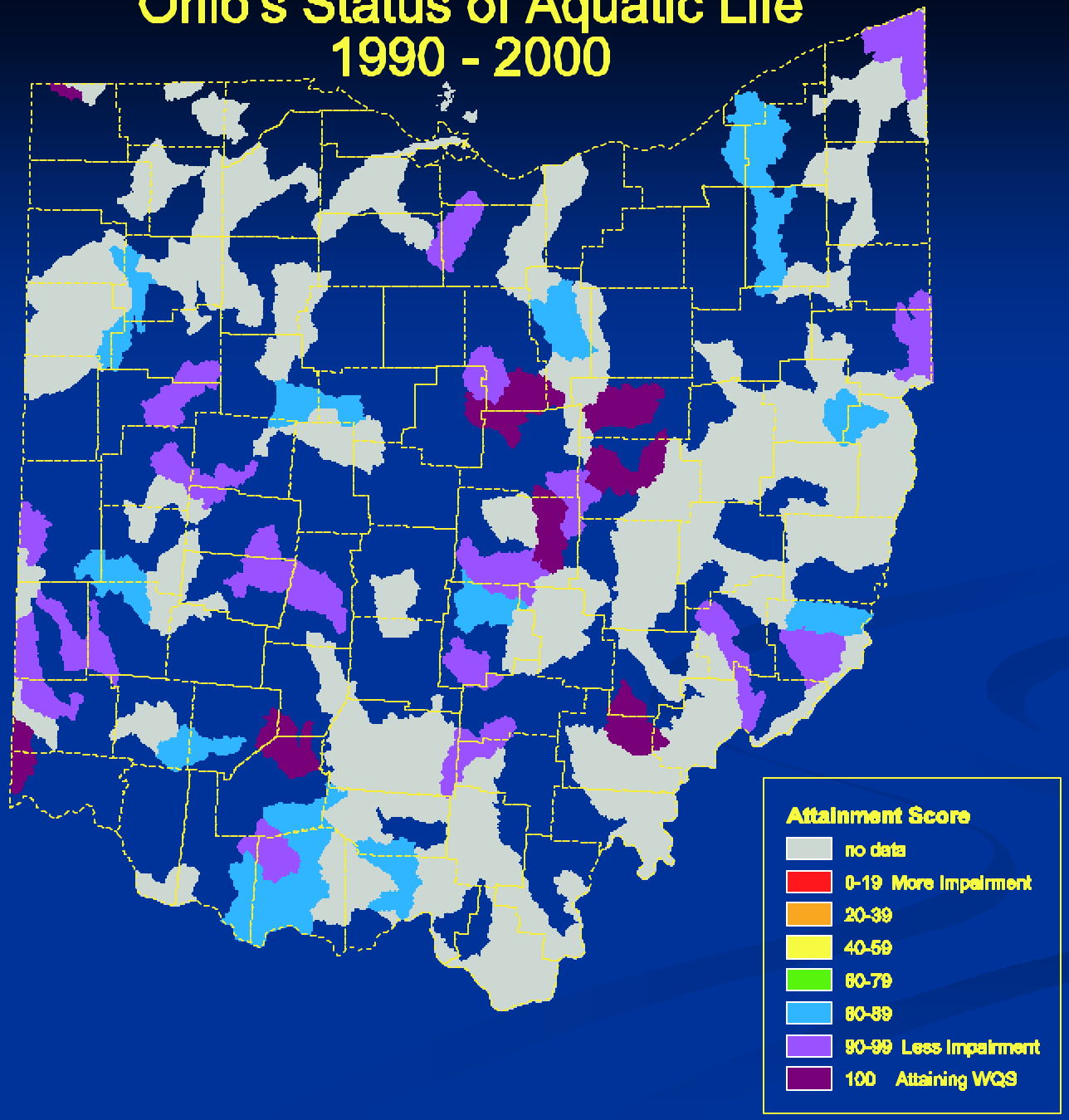

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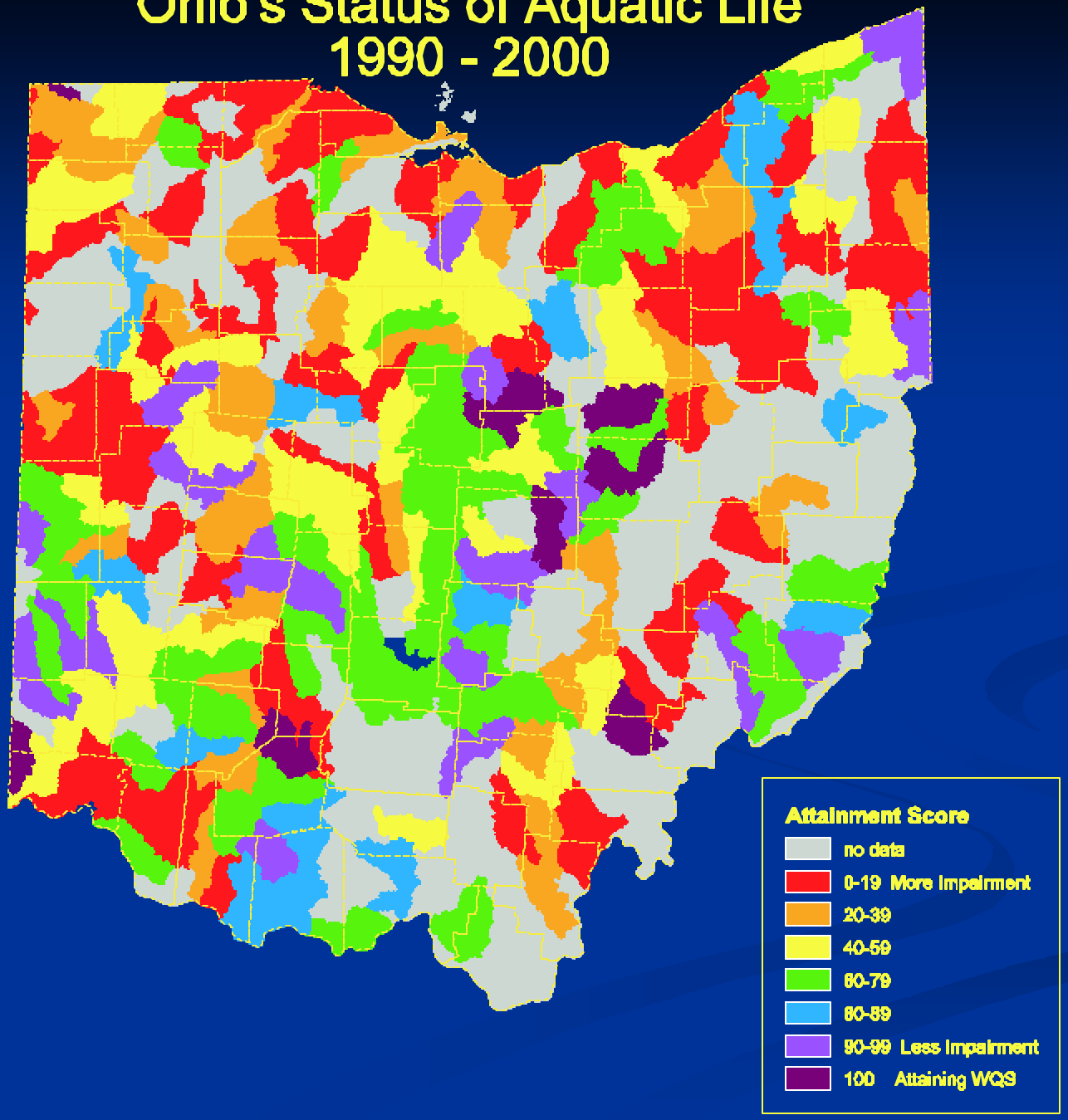


Wakotomika Creek RM 18.7